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Sequence Listing was accepted.

See attached Validation Report.

If you need help call the Patent Electronic Business Center at (866)
217-9197 (toll free).

Reviewer: Durreshwar Anjum

Timestamp: [year=2009; month=7; day=9; hr=10; min=15; sec=9; ms=889;]

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Application No: 09555534 Version No: 5.0

Input Set:

Output Set:

Started: 2009-06-19 15:29:51.102
Finished: 2009-06-19 15:30:06.691
Elapsed: 0 hr(s) 0 min(s) 15 sec(s) 589 ms
Total Warnings: 34
Total Errors: 4
No. of SeqIDs Defined: 36
Actual SeqID Count: 36

Error code	Error Description
W 213	Artificial or Unknown found in <213> in SEQ ID (3)
E 224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (3)
W 213	Artificial or Unknown found in <213> in SEQ ID (4)
W 213	Artificial or Unknown found in <213> in SEQ ID (5)
E 224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (5)
W 213	Artificial or Unknown found in <213> in SEQ ID (6)
W 213	Artificial or Unknown found in <213> in SEQ ID (7)
E 224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (7)
W 213	Artificial or Unknown found in <213> in SEQ ID (8)
W 213	Artificial or Unknown found in <213> in SEQ ID (9)
E 224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (9)
W 213	Artificial or Unknown found in <213> in SEQ ID (10)
W 213	Artificial or Unknown found in <213> in SEQ ID (11)
W 213	Artificial or Unknown found in <213> in SEQ ID (12)
W 213	Artificial or Unknown found in <213> in SEQ ID (13)
W 213	Artificial or Unknown found in <213> in SEQ ID (14)
W 213	Artificial or Unknown found in <213> in SEQ ID (15)
W 213	Artificial or Unknown found in <213> in SEQ ID (16)

Input Set:

Output Set:

Started: 2009-06-19 15:29:51.102

Finished: 2009-06-19 15:30:06.691

Elapsed: 0 hr(s) 0 min(s) 15 sec(s) 589 ms

Total Warnings: 34

Total Errors: 4

No. of SeqIDs Defined: 36

Actual SeqID Count: 36

Error code	Error Description
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W 213	Artificial or Unknown found in <213> in SEQ ID (18)
W 213	Artificial or Unknown found in <213> in SEQ ID (19)
W 213	Artificial or Unknown found in <213> in SEQ ID (20)
W 213	Artificial or Unknown found in <213> in SEQ ID (21)
W 213	Artificial or Unknown found in <213> in SEQ ID (22) This error has occurred more than 20 times, will not be displayed

SEQUENCE LISTING

<110> Ensoli, Barbara

<120> HIV-1 TAT, OR DERIVATIVES THEREOF FOR
PROPHYLACTIC AND THERAPEUTIC VACCINATION

<130> 11340-003-999

<140> 09555534

<141> 2000-05-31

<150> PCT/EP98/07721

<151> 1998-11-30

<150> RM97A000743

<151> 1997-12-01

<160> 36

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 261

<212> DNA

<213> Human immunodeficiency virus

<220>

<221> CDS

<222> (1)...(261)

<223> Wild-type HIV-1 Tat

<400> 1

atg gag cca gta gat cct aga cta gag ccc tgg aag cat cca gga agt	48
Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser	
1 5 10 15	

cag cct aaa act gct tgt acc aat tgc tat tgt aaa aag tgt tgc ttt	96
Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe	
20 25 30	

cat tgc caa gtt tgt ttc ata aca aaa gcc tta ggc atc tcc tat ggc	144
His Cys Gln Val Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly	
35 40 45	

agg aag aag cgg aga cag cga cga aga cct cct caa ggc agt cag act	192
Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr	
50 55 60	

cat caa gtt tct cta tca aag cag ccc acc tcc caa tcc cga ggg gac	240
His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Arg Gly Asp	
65 70 75 80	

ccg aca ggc ccg aag gaa tag	261
Pro Thr Gly Pro Lys Glu *	

<210> 2
 <211> 86
 <212> PRT
 <213> Human immunodeficiency virus

<220>
 <223> Wild-type HIV-1 Tat

<400> 2
 Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
 1 5 10 15
 Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe
 20 25 30
 His Cys Gln Val Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly
 35 40 45
 Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr
 50 55 60
 His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Arg Gly Asp
 65 70 75 80
 Pro Thr Gly Pro Lys Glu
 85

<210> 3
 <211> 261
 <212> DNA
 <213> Artificial Sequence

<220>
 <221> CDS
 <222> (1)...(261)
 <223> HIV-1 Tat having an amino acid
 substitution at position 22 (changed from Cys to Gly)

<400> 3
 atg gag cca gta gat cct aga cta gag ccc tgg aag cat cca gga agt 48
 Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
 1 5 10 15
 cag cct aaa act gct ggt acc aat tgc tat tgt aaa aag tgt tgc ttt 96
 Gln Pro Lys Thr Ala Gly Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe
 20 25 30
 cat tgc caa gtt tgt ttc ata aca aaa gcc tta ggc atc tcc tat ggc 144
 His Cys Gln Val Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly
 35 40 45
 agg aag aag cgg aga cag cga cga aga cct cct caa ggc agt cag act 192
 Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr
 50 55 60
 cat caa gtt tct cta tca aag cag ccc acc tcc caa tcc cga ggg gac 240
 His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Arg Gly Asp

65	70	75	80	
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ccg aca ggc ccg aag gaa tag 261
Pro Thr Gly Pro Lys Glu *
85

<210> 4
<211> 86
<212> PRT
<213> Artificial Sequence

<220>
<223> HIV-1 Tat having an amino acid substitution
at position 22 (changed from Cys to Gly)

<400> 4
Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
1 5 10 15
Gln Pro Lys Thr Ala Gly Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe
20 25 30
His Cys Gln Val Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly
35 40 45
Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr
50 55 60
His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Arg Gly Asp
65 70 75 80
Pro Thr Gly Pro Lys Glu
85

<210> 5
<211> 261
<212> DNA
<213> Artificial Sequence

<220>
<221> CDS
<222> (1)...(261)
<223> HIV-1 Tat having an amino acid
substitution at position 41 (changed from Lys to Thr)

<400> 5
atg gag cca gta gat cct aga cta gag ccc tgg aag cat cca gga agt 48
Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
1 5 10 15
cag cct aaa act gct tgt acc aat tgc tat tgt aaa aag tgt tgc ttt 96
Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe
20 25 30
cat tgc caa gtt tgt ttc ata aca aca gcc tta ggc atc tcc tat ggc 144
His Cys Gln Val Cys Phe Ile Thr Thr Ala Leu Gly Ile Ser Tyr Gly
35 40 45
agg aag aag cgg aga cag cga cga aga cct cct caa ggc agt cag act 192
Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr

50

55

60

cat caa gtt tct cta tca aag cag ccc acc tcc caa tcc cga ggg gac 240
 His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Arg Gly Asp
 65 70 75 80

ccg aca ggc ccg aag gaa tag 261
 Pro Thr Gly Pro Lys Glu *
 85

<210> 6

<211> 86

<212> PRT

<213> Artificial Sequence

<220>

<223> HIV-1 Tat having an amino acid substitution at
 position 41 (changed from Lys to Thr)

<400> 6

Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
 1 5 10 15
 Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe
 20 25 30
 His Cys Gln Val Cys Phe Ile Thr Thr Ala Leu Gly Ile Ser Tyr Gly
 35 40 45
 Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr
 50 55 60
 His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Arg Gly Asp
 65 70 75 80
 Pro Thr Gly Pro Lys Glu
 85

<210> 7

<211> 252

<212> DNA

<213> Artificial Sequence

<220>

<221> CDS

<222> (1)...(252)

<223> HIV-1 Tat having a three-amino acid deletion at
 positions 78-80 (Arginine-Glycine-Aspartic acid (RGD))

<400> 7

atg gag cca gta gat cct aga cta gag ccc tgg aag cat cca gga agt 48
 Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
 1 5 10 15
 cag cct aaa act gct tgt acc aat tgc tat tgt aaa aag tgt tgc ttt 96
 Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe
 20 25 30
 cat tgc caa gtt tgt ttc ata aca aaa gcc tta ggc atc tcc tat ggc 144
 His Cys Gln Val Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly

35

40

45

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agg aag aag cgg aga cag cga cga aga cct cct caa ggc agt cag act 192
Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr
    50              55              60

cat caa gtt tct cta tca aag cag ccc acc tcc caa tcc ccg aca ggc 240
His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Pro Thr Gly
    65              70              75              80

ccg aag gaa tag 252
Pro Lys Glu *
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<210> 8

<211> 83

<212> PRT

<213> Artificial Sequence

<220>

<223> HIV-1 Tat having a three-amino acid deletion at positions 78-80
(Arginine-Glycine-Aspartic acid (RGD))

<400> 8

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Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
 1              5              10              15
Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe
              20              25              30
His Cys Gln Val Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly
              35              40              45
Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr
              50              55              60
His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Pro Thr Gly
              65              70              75              80
Pro Lys Glu
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<210> 9

<211> 252

<212> DNA

<213> Artificial Sequence

<220>

<221> CDS

<222> (1)...(252)

<223> HIV-1 Tat having a three-amino acid deletion at
positions 78-80 (Arginine-Glycine-Aspartic acid (RGD)) and
having an amino acid substitution at position 41 (from Lys to Thr)

<400> 9

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atg gag cca gta gat cct aga cta gag ccc tgg aag cat cca gga agt 48
Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
 1              5              10              15

cag cct aaa act gct tgt acc aat tgc tat tgt aaa aag tgt tgc ttt 96
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```

Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe
      20                      25                      30

cat tgc caa gtt tgt ttc ata aca aca gcc tta ggc atc tcc tat ggc   144
His Cys Gln Val Cys Phe Ile Thr Thr Ala Leu Gly Ile Ser Tyr Gly
      35                      40                      45

agg aag aag cgg aga cag cga cga aga cct cct caa ggc agt cag act   192
Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr
      50                      55                      60

cat caa gtt tct cta tca aag cag ccc acc tcc caa tcc ccg aca ggc   240
His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Pro Thr Gly
      65                      70                      75                      80

ccg aag gaa tag   252
Pro Lys Glu  *

```

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<210> 10
<211> 83
<212> PRT
<213> Artificial Sequence

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<220>
<223> HIV-1 Tat having a three-amino acid deletion at positions 78-80
      (Arginine-Glycine-Aspartic acid (RGD)) and having an amino
      acid substitution at position 41 (changed from Lys to Thr)

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<400> 10
Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
  1              5              10              15
Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe
      20              25              30
His Cys Gln Val Cys Phe Ile Thr Thr Ala Leu Gly Ile Ser Tyr Gly
      35              40              45
Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr
      50              55              60
His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Pro Thr Gly
      65              70              75              80
Pro Lys Glu

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<210> 11
<211> 20
<212> PRT
<213> Artificial Sequence

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<220>
<223> HIV-1 Tat peptide

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<400> 11
Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
  1              5              10              15

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Gln Pro Lys Thr
20

<210> 12
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> HIV-1 Tat peptide

<400> 12
Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe His Cys Gln Val
1 5 10 15
Cys Phe Ile Thr
20

<210> 13
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> HIV-1 Tat peptide

<400> 13
Gln Val Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly Arg Lys
1 5 10 15

<210> 14
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> HIV-1 Tat peptide

<400> 14
Ser Tyr Gly Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln
1 5 10 15

<210> 15
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> HIV-1 Tat peptide

<400> 15
Arg Pro Pro Gln Gly Ser Gln Thr His Gln Val Ser Leu Ser Lys Gln
1 5 10 15

<210> 16
 <211> 16
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> HIV-1 Tat peptide

 <400> 16
 His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Arg Gly Asp
 1 5 10 15

<210> 17
 <211> 14
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> HIV-1 Tat peptide

<400> 17
 Pro Thr Ser Gln Ser Arg Gly Asp Pro Thr Gly Pro Lys Glu
 1 5 10

<210> 18
 <211> 15
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Forward primer Rev

<400> 18
 atggcaggaa gaagc 15

<210> 19
 <211> 15
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Reverse primer Rev

<400> 19
 ctattcttta gttcc 15

<210> 20
 <211> 15
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Forward primer Nef

<400> 20	
atgggtggca agtgg	15
<210> 21	
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<223> Reverse primer Nef	
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atgggtgcga gagcg	15
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<223> Reverse primer Gag	
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<223> Forward primer IL-12	
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ttaggaagca ttcag	15

<210> 26
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 <223> Forward primer IL-15

 <400> 26
 atgagaattt cgaaa 15

 <210> 27
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 <220>
 <223> Reverse primer IL-15

 <400> 27
 tcaagaagtg ttgat 15

 <210> 28
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 <213> Artificial Sequence

 <220>
 <223> Forward primer Tat

 <400> 28
 atggagccag tagat 15

 <210> 29
 <211> 15
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Reverse primer Tat

 <400> 29
 ctattccttc gggcc 15

 <210> 30
 <211> 27
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Forward primer Tat/Rev

 <400> 30
 ggcccgaagg aaatggcagg aagaagc 27

 <210> 31

<211> 27
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Forward primer Tat/Nef

 <400> 31
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 <210> 32
 <211> 28
 <212> DNA
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 <223> Forward primer Tat/Gag

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 <210> 33
 <211> 27
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Forward primer Tat/IL-12

 <400> 33
 ggcccgaagg aaatgtggcc ccctggg 27

 <210> 34
 <211> 27
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 <213> Artificial Sequence

 <220>
 <223> Forward primer Tat/IL-15

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 <212> DNA
 <213> Artificial Sequence

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 <223> Primer SG1096Ngag

 <400> 35
 ttaggctacg acccggcgga aaga 24

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<213> Artificial Sequence

<220>

<223> Primer SG1592CgagD

<400> 36

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24